Spontaneous Regression of Non–Small-Cell Lung Cancer in AIDS After Immune Reconstitution

Manoj P. Menon, MD, MPH and Keith D. Eaton, MD, PhD

Spontaneous regression (SR) refers to the "partial or complete disappearance of a malignant tumor in the absence of all treatment or in the presence of therapy which is considered inadequate to exert a significant influence on neoplastic disease".[1] SR is a rare event, estimated to occur in one in 60,000 to one in 100,00 cases of cancer.[2] Although there are reports of SR occurring in different malignancies, many cases of SR occur among patients with renal cell carcinoma, non-Hodgkin's lymphoma, malignant melanoma, chronic lymphoid leukemia, and neuroblastoma.[3]

We describe the first case in the literature of SR of metastatic non–small-cell lung cancer (NSCLC) in the setting of immune reconstitution in an HIV positive individual.

At diagnosis, the patient was a 44-year-old male smoker with a past medical history significant for HIV/AIDS diagnosed 20 years earlier, neurosyphilis, and toxoplasmosis, who presented with a severe headache, photophobia, nausea, and vomiting. At the time of his initial presentation, his CD4 count was 77 cells/mm^3 and he had not been adherent to his highly active antiretroviral therapy regimen (HAART). Brain imaging revealed a 1.7×1.8 cm ring-enhancing lesion in the posterior right parietal lobe with significant edema and midline shift. He was empirically treated for toxoplasmosis without clinical or radiologic improvement.

Craniotomy and excision of the brain mass revealed a poorly differentiated non–small-cell carcinoma with immunohistochemical staining positive for low molecular weight cytokeratin and negative for CK7, CK20, and HMB45 consistent with poorly differentiated NSCLC. CT revealed a right upper lobe nodule (17×9 mm), a right adrenal mass (47×41 mm), and a heterogeneous mass anterior to the pancreatic body (23×24 mm). Biopsies of both the adrenal gland and lung

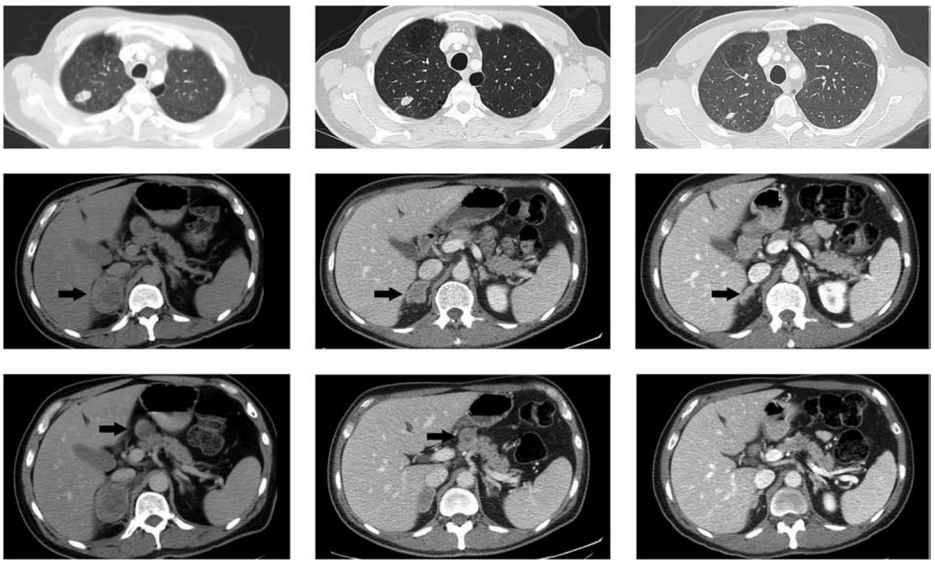

FIGURE 1. The columns of this diagram show CT images at diagnosis, 4 months post-diagnosis, and 21 months post-diagnosis. The first row shows the primary lung lesion, the second row the adrenal lesion, and the third row the pancreatic lesion. The axial slices in which the lesion was largest are shown. By the last column, both the adrenal lesion and the pancreatic lesion have resolved.

Division of Medical Oncology, University of Washington School of Medicine, Seattle, WA.
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Address for correspondence: Keith Eaton, MD, PhD Division of Medical Oncology, University of Washington School of Medicine, Box 358081, MS G4-940, Seattle, WA. Email: kdeaton@uw.edu
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revealed TTF-1 positive, poorly differentiated carcinoma with extensive necrosis consistent with a primary lung malignancy.

The patient received whole brain radiotherapy, 3000 cGy in 10 fractions and therapy with HAART was re-initiated. Soon after, his CD4 count had increased to 104 cells/mm^3 and repeat brain imaging did not reveal any areas of residual enhancement to suggest persistent tumor activity.

Because of the patient's poor performance status, no further antineoplastic therapy was given and radiographic surveillance was initiated with serial follow-up CT scans every 4–6 months. The patient remains compliant with HAART and his CD4 counts have been consistently greater than 200 cells/mm^3.

Serial imaging has demonstrated progressive diminution of the pulmonary, adrenal, and pancreatic lesions without the appearance of new lesions (Fig. 1). At 5-year follow-up, the lung lesion measured 11×5 mm and no adrenal or pancreatic masses were seen.

Although patients with HIV typically are thought to have a more aggressive course, this may not be the case in the HAART era.[4] Novel immune therapies such as anti-PD-1/PD-L1 antibodies have recently demonstrated remarkable responses in a subset of patients with NSCLC.[5] This case provides the first reported case of a SR of metastatic non–small-cell lung cancer consequent to immune reconstitution and underscores the potential role of the immune system in combating NSCLC.

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